

ABSTRACT OF THE DISCLOSURE

A plurality of radiation image signals respectively representing a plurality of radiation images of an object, which radiation images have been formed with several kinds of radiation having different energy distributions, are obtained. An energy subtraction image signal, which has been formed from the plurality of the radiation image signals, is also obtained. Compression processing is performed on the plurality of the radiation image signals and the energy subtraction image signal. The energy subtraction image signal is compressed with a compressibility higher than the compressibility with respect to each of the radiation image signals.